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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,445	12/12/2003	Kenneth W. Brown	PD-01W176	9673

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EXAMINER

ALEMU, EPHREM

ART UNIT PAPER NUMBER

2821

DATE MAILED: 03/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary

Application No.

10/734,445

Applicant(s)

BROWN ET AL.

Examiner

Ephrem Alemu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 September 2004.
 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☒ Claim(s) 1-24 and 27-33 is/are rejected.
 7) ☒ Claim(s) 25 and 26 is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date 9-20-04.
 4) ☐ Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.
 5) ☐ Notice of Informal Patent Application (PTO-152)
 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 8 is objected to because of the following informalities: In claim 8, line 1, replace "claim 1" with --claim 2-- since claim 8 is further limiting the "cells" claimed in claim 2; or correct it appropriately. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-6, 8-10, 13-24, 27 and 30-33 are rejected under 35 U.S.C. 102(b) as being anticipated by Wong (US 5,214,394).

Re claim 1, Wong discloses an amplifier comprising:

a monolithic semiconductor substrate (i.e., integration plate 85) and

means disposed on the substrate (i.e., radiating elements 69 including amplifier elements 71) for coherently receiving and retransmitting electromagnetic energy (Figs.4-7, 11-17; lines 7-10 of abstract; Col. 2, line 56- Col. 3, line 14; Col. 4, line 6- Col. 5, line 55).

Re claims 2-4 and 8, Wong further discloses means disposed on said substrate (i.e., radiating elements 69 including amplifier elements 71) for coherently reflecting electromagnetic energy includes an array of cells (i.e., array of amplifier elements with radiating elements) (Figs.7, 11, 12, 16; lines 7-10 of abstract; Col. 2, line 56- Col. 3, line 14; Col. 4, line 6- Col. 5, line 55); wherein the radiating elements 69 can be single element 69 as illustrated in Fig. 11, or

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receiving element 69a and transmitting element 69b as illustrated in Fig. 12 for dual polarized signal).

Re claims 5 and 6, Wong further shows the antennas (i.e., radiating elements 69) of the cell being patch antenna (Figs. 11, 12; Col. 5, lines 31-55).

Re claim 9, Wong further shows means for splitting a received wavefront (i.e., dielectric lens 67), reflecting a portion thereof and transmitting a portion thereof (Fig. 4; Col. 4; lines 16-27; Col. 5, line 68- Col. 6, line 10).

Re claim 10, Wong further shows that the means disposed on the substrate (i.e., array of amplifier elements (71) with radiating elements (69)) is also a means for receiving and retransmitting a beam of electromagnetic energy while controlling the direction thereof (Fig. 4; Col. 4; lines 16-27).

Re claim 13, Wong discloses an amplifier comprising:

an ortho-mode feed (i.e., ortho-mode transducer (63);

a reflective amplifier array (i.e., array of amplifier elements with radiating elements) adapted to be illuminated by the feed with an input wave front with a first polarization (i.e., vertically polarized) and to return thereto an amplified wavefront output wavefront with a second polarization (i.e., horizontally polarized) orthogonal to the first wavefront (i.e., vertically polarized) (Figs.4-7, 11-17; abstract; Col. 2, line 56- Col. 3, line 14; Col. 4, line 6- Col. 5, line 55).

Re claim 14, Wong further discloses a monolithic semiconductor substrate (i.e., integration plate 85) and

means disposed on the substrate (i.e., radiating elements 69 including amplifier elements 71) for coherently receiving and retransmitting electromagnetic energy (Figs.4-7, 11-17; lines 7-10 of abstract; Col. 2, line 56- Col. 3, line 14; Col. 4, line 6- Col. 5, line 55).

Re claims 15-17 and 18, Wong further discloses means disposed on said substrate (i.e., radiating elements 69 including amplifier elements 71) for coherently reflecting electromagnetic energy includes an array of cells (i.e., array of amplifier elements with radiating elements) (Figs.7, 11, 12, 16; lines 7-10 of abstract; Col. 2, line 56- Col. 3, line 14; Col. 4, line 6- Col. 5, line 55; wherein the radiating elements 69 can be single element 69 as illustrated in Fig. 11, or receiving element 69a and transmitting element 69b as illustrated in Fig. 12 for dual polarized signal).

Re claim 19 and 20, Wong further shows the antennas (i.e., radiating elements 69) of the cell being patch antenna (Figs. 11, 12; Col. 5, lines 31-55).

Re claims 21-24, Wong further shows feed means including means for illuminating the array (i.e., ortho-mode transducer (63) with a spherical wavefront and means for converting the spherical wavefront to a planar wavefront (i.e., dielectric lens 67) (Fig. 4; Col. 4, lines 7-27; wherein means for converting the spherical wavefront (i.e., dielectric lens 67) to a planar wavefront includes at least one reflective element (i.e., dielectric lens 67)).

Re claim 27, Wong further shows that the means disposed on the substrate (i.e., array of amplifier elements (71) with radiating elements (69)) is also a means for receiving and retransmitting a beam of electromagnetic energy while controlling the direction thereof (Fig. 4; Col. 4; lines 16-27).

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Re claims 30-33, given Wong's amplifier as described above in claims 13-24, the method for coherently receiving and retransmitting an electromagnetic wavefront as claimed in claims 30-33 is inevitable.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 11, 12, 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wong (US 5,214,394) in view of Richards et al. (US 6,020,853 submitted by applicant).

Re claims 11 and 12, Wong does not disclose a phase shifter coupled between the first and the second antennas for controlling the direction of the received and retransmitted beam. However, Richards discloses that providing a phase shifter at each array element is well known except that the phased array antenna being costly (Col. 1, lines 16-30).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Wong's amplifier by providing a phase shifter between the first and second antennas (69) for the purpose of shifting the phase of the received and amplified electromagnetic wave to be substantially non interfering as is well known in the art.

Re claims 28 and 29, Wong does not disclose a phase shifter coupled between the first and the second antennas for controlling the direction of the received and retransmitted beam. However, Richards discloses that providing a phase shifter at each array element is well known except that the phased array antenna being costly (Col. 1, lines 16-30).

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Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Wong's amplifier by providing a phase shifter between the first and second antennas (69) for the purpose of shifting the phase of the received and amplified electromagnetic wave to be substantially non interfering as is well known in the art.

Double Patenting

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-8 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-4 of U.S. Patent No. 6,765,535. Although the conflicting claims are not identical, they are not patentably distinct from each other because Applicants' claimed invention of claim 1, and the issued patent U.S. Patent No. 6,765,535, essentially claim an amplifier (i.e., monolithic millimeter wave reflector array system) comprising a monolithic semiconductor substrate and means disposed on the substrate for coherently receiving and retransmitting electromagnetic energy (i.e. means including an array of cells each of the cells including an antenna for receiving the electromagnetic energy, an amplifier receiving the electromagnetic energy, an amplifier connected to the receive antenna and an output antenna). The only obvious difference between Applicant's claimed invention and issued

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patent, U.S. Patent No. 6,765,535, is that the claimed invention in the instant application broadly claims the monolithic millimeter wave reflector array system of the '535 patent as an amplifier which would have been an obvious variation of the structural arrangement as claimed in the issued patent U.S. Patent No. 6,765,535.

Allowable Subject Matter

7. Claims 25 and 26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the prior art of record fail to teach or suggest, alone or in combination, the limitation: "wherein the means for converting the spherical wavefront to a planar wavefront includes first and second mirrors" as claimed in claim 25.

Claim 26 is objected to as being dependent over objected claim 25.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Wong (EP 0509214); Judd et al. (US 6,621,469); and Tsou et al. (US 5,315,303); and also teach similar inventive subject matter.

Correspondence


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ephrem Alemu whose telephone number is (571) 272-1818. The examiner can normally be reached on M-F Flex hours.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don K Wong can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EA
3-19-05


WILSON LEE
PRIMARY EXAMINER